

C. Remarks

The claims are 1-39, 56-60 and 63-85, with claims 1, 27, 65-67 and 82 being independent. New claims 67-85 have been added, which are based on the pending claims and the disclosure in the specification. No new matter has been added.

Reconsideration of the present claims is expressly requested.

Applicants respectfully request that the Examiner consider the documents submitted with the Information Disclosure Statement filed on May 21, 2003 (copy enclosed). While this Information Disclosure Statement was accompanied by the required fee of \$180.00 under 37 C.F.R. § 1.97(d)(2), the statement under 37 C.F.R. § 1.97(e) was inadvertently omitted. Applicants hereby state that at the time the May 21, 2003 IDS was filed, each document submitted therewith was first cited in any communication from a foreign Patent Office in a counterpart foreign application not more than three months prior to the filing date of the IDS.

Claims 2-26, 28-39, 56-60 and 63-65 stand provisionally rejected under the judicially created doctrine of obviousness-type double patenting over claims 1-49 of U.S. Patent Application No. 09/794,836 (Kato).

Applicants will submit a Terminal Disclaimer in order to overcome this rejection as soon as it is signed.

Claim 28-35 and 37-39 stand rejected under 35 U.S.C. § 103(a) as being allegedly unpatentable over U.S. Patent No. 5,813,799 (Calcote) in combination with U.S. Patent No. 5,308,507 (Robson). The grounds of rejection are respectfully traversed.

Prior to addressing the merits of rejection, Applicants would like to briefly review some of the key features and advantages of the presently claimed invention. The present invention, in part, is related to an apparatus for decomposing polluted soil. The pollutants are extracted from soil using a gas-emitting means, which heats the soil, causing a pollutant-containing gas to be released therefrom. Using a mixing means, this pollutant-containing gas is then mixed with a chlorine-containing gas, which is obtained by a chlorine-containing gas generating means. The gaseous mixture is irradiated with light by a light-irradiating means. The light irradiation of the mixed gas results in an efficient decomposition of pollutants, which were initially contaminating soil. Thus, the present invention simultaneously solves two problems: decontaminating soil and decomposing pollutants.

Calcote is directed to removing pollutants from groundwater and soil by using heat. As acknowledged by the Examiner, this reference does not disclose or suggest the apparatus which can be used to decompose the released pollutants. The Examiner, however, alleged that Robson teaches such an apparatus and that this apparatus is as presently claimed. Applicants respectfully disagree.

To properly fully appreciate the differences between the apparatus in the rejected claims and the apparatus in Robson, it is important to understand the underlying principals behind the decomposition processes. Robson is directed to a decomposition by an entirely different mechanism than the presently claimed invention and uses a substantially different apparatus from the one which is presently claimed by Applicants. Robson teaches decomposition of an organic compound, such as trichloroethylene, by an

oxidizing solution containing oxidants, such as ozone produced by an electrolysis of a salt solution, with the optional use of UV light. To the contrary, the decomposition in the present invention is conducted by chlorine free radicals, which are formed when the mixture is irradiated with light.

It is clear that the decomposition in Robson is carried out in a liquid and not in a gaseous phase (see col. 3, lines 18-21 and 50-52).<sup>1</sup> In fact, both the contaminants and the oxidants are in an aqueous solution.

An element of the apparatus in Robson alleged by the Examiner to be a means for producing a chlorine-containing gas is an electrolytic cell, which produces a solution containing oxidants (liquid). Applicants respectfully submit that such an electrolytic cell is incapable of producing a chlorine-containing gas<sup>2</sup> and thus cannot be a chlorine-gas generating means. Further, since Robson is directed to a liquid-phase decomposition, it cannot disclose or suggest the mixing means as presently claimed.

Thus, in sum, Robson clearly does not disclose or suggest at least:

- (i) a gas-emitting means;
- (ii) a chlorine-containing gas generating means; and
- (iii) a mixing means.

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<sup>1/</sup>The Examiner will note that the electrolytic cell generating oxidants in a salt solution is by definition not a means for generating a gas containing chlorine. Neither the anode stream nor the cathode stream generated by this cell can be considered a gaseous mixture.

<sup>2/</sup>As mentioned above, the electrolytic cell produces only a liquid. It cannot produce a gas, especially not by aeration.

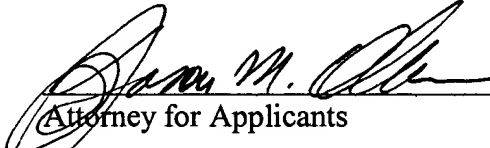
Accordingly, it is clear that Robson cannot be combined with Calcote to render the presently claimed invention unpatentable.<sup>3</sup>

Wherefore, Applicants respectfully request that all outstanding rejections be withdrawn and that the present case be passed to issue.

This Amendment After Final Rejection should be entered, because it places the case in allowable form. Alternatively, it places the case in better form for possible appeal.

Applicants' undersigned attorney may be reached in our New York office by telephone at (212) 218-2100. All correspondence should continue to be directed to our address given below.

Respectfully submitted,

  
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<sup>3/</sup> Applicants respectfully submit that the new claims are patentable over the cited references at least for the reasons discussed above.

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03500.014996

PATENT APPLICATION

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Application of:

KINYA KATO ET AL.

Application No.: 09/741,332

Filed: December 21, 2000

For: METHOD AND APPARATUS  
FOR PURIFYING POLLUTED  
SOIL, AND APPARATUS FOR  
EMITTING CHLORINE-  
CONTAINING GAS AND  
APPARATUS FOR  
DECOMPOSING POLLUTED  
GAS USING THE SAME

Examiner: E. Wong

Group Art Unit: 1753

RECEIVED

SEP 04 2003

GROUP 1700

May 20, 2003

Commissioner for Patents  
P.O. Box 1450  
Alexandria, VA 22313-1450

SECOND INFORMATION DISCLOSURE STATEMENT

Sir:

In compliance with the duty of disclosure under 37 C.F.R. § 1.56 and in accordance with the practice under 37 C.F.R. §§ 1.97 and 1.98, the Examiner's attention is directed to the documents listed on the enclosed Form PTO-1449. Copies of the listed documents are also enclosed.

This Information Disclosure Statement is to submit documents cited in the European Search Report in a corresponding European application. A copy of the Search Report is also enclosed.

The concise explanation of relevance for the non-English document may be found, inter alia, in the enclosed European Search Report.


CONCLUSION

It is respectfully requested that the above information be considered by the Examiner and that a copy of the enclosed Form PTO-1449 be returned indicating that such information has been considered.

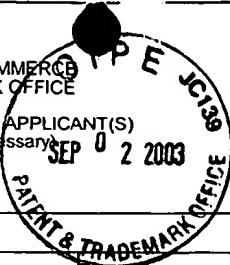
We also enclose a check for the required fee of \$180.00 to cover the Information Disclosure Statement under 37 C.F.R. § 1.97(d)(2).

Applicants' undersigned attorney may be reached in our New York office by telephone at (212) 218-2100. All correspondence should continue to be directed to our address given below.

Respectfully submitted,

  
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FORM PTO 1449 (modified)  U.S. DEPARTMENT OF COMMERCE PATENT AND TRADEMARK OFFICE  LIST OF REFERENCES CITED BY APPLICANT(S) (Use several sheets if necessary)				ATTY DOCKET NO. <b>03500.014996</b>		APPLICATION NO. <b>09/741,332</b>	
				APPLICANT <b>Kinya Kato et al.</b>			
				FILING DATE <b>December 21, 2000</b>		GROUP <b>1753</b>	
U.S. PATENT DOCUMENTS							
*EXAMINER INITIAL		DOCUMENT NUMBER	DATE	NAME	CLASS	SUBCLASS	FILING DATE IF APPROPRIATE
		<b>4,966,665</b>	<b>10/30/90</b>	<b>Ibusuki et al.</b>	<b>204</b>	<b>157.3</b>	
FOREIGN PATENT DOCUMENTS							
		DOCUMENT NUMBER	DATE	COUNTRY	CLASS	SUBCLASS	TRANSLATION YES/NO/ OR ABSTRACT
	<b>EP</b>	<b>0 841 305 A2</b>	<b>05/13/98</b>	<b>Europe</b>			
	<b>EP</b>	<b>0 968 739 A1</b>	<b>01/05/00</b>	<b>Europe</b>			
	<b>DE</b>	<b>44 00 308 A1</b>	<b>07/06/95</b>	<b>Germany</b>			
OTHER DOCUMENT(S) (Including Author, Title, Date, Pertinent Pages, Etc.)							
		<b>European Search Report in EP Application No. 00128286.2-2307 (April 30, 2003).</b>					
EXAMINER				DATE CONSIDERED			

\*EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609; Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant.

Sheet 1 of 1